



## ANNEX I

A 1/3

**Simulations Schematic and Results of Helm's Predistortion Proposed Architecture**

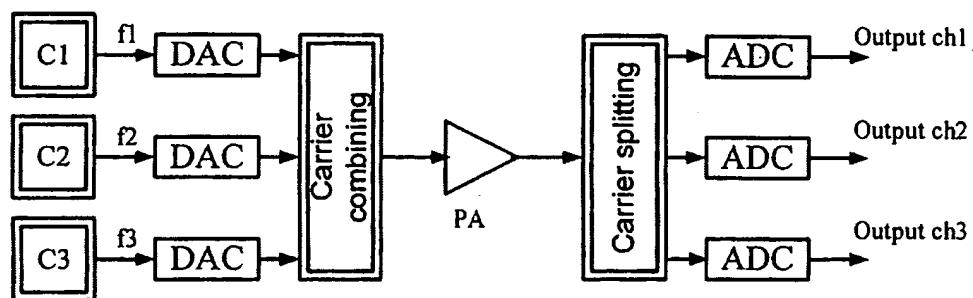


Figure 1. Schematic used for simulation purposes.

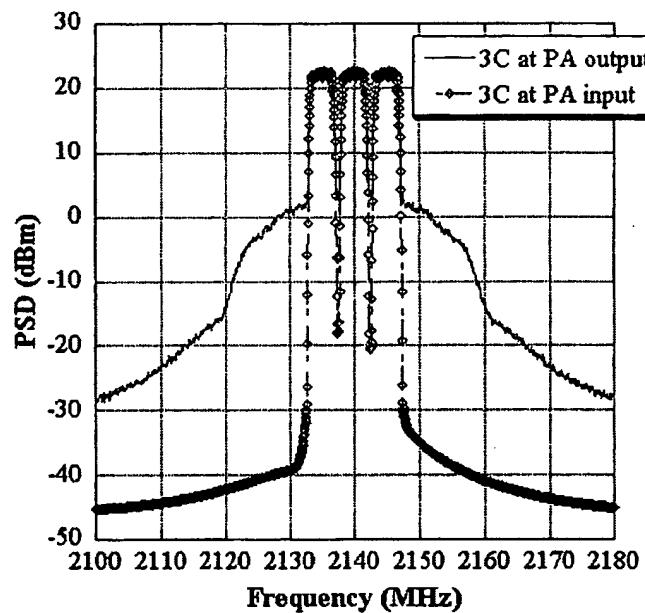


Figure 2. Amplified and non amplified spectrums of the 3C-WCDMA signal.

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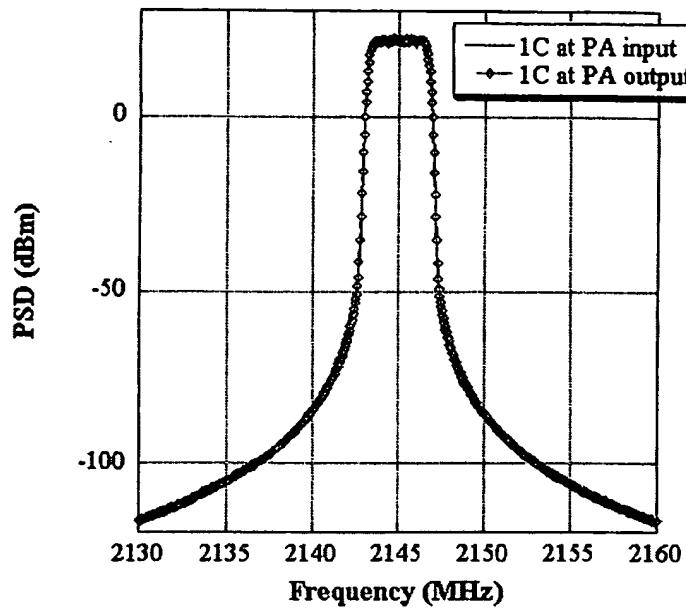


Figure 3. Carrier-related spectrums (input spectrum and selected carrier spectrum at PA output).

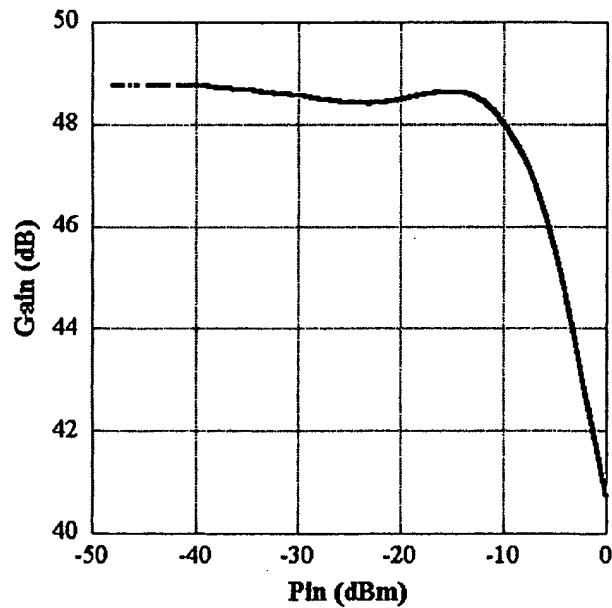


Figure 4. Measured AM/AM curve for the three-carrier signal

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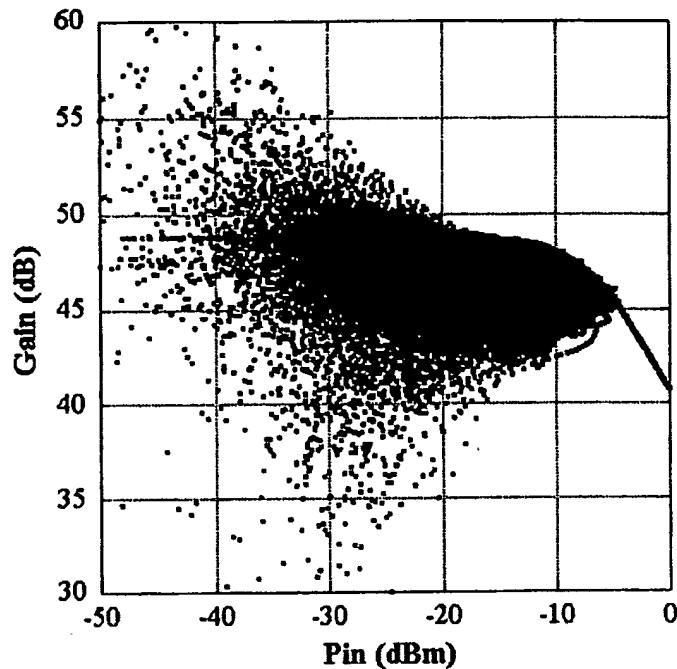


Figure 5. Measured carrier-related AM/AM curve for the first carrier signal.

Figure 3 shows the spectrum of a selected carrier (carrier 1) at the output of the amplifier as well as the spectrum of this carrier at the input of the amplifier. The two spectrum are almost identical and no out-ofband distortion is included in the selected carrier spectrum at the output of the amplifier. This contrasts with the spectrums shown in Fig. 2 of the whole signal (3 carriers). The output spectrum of the 3C-WCDMA signal includes out-of band distortion needed to characterize and model the PA in terms of AM-AM and AM-PM curves. Fig. 4 shows the AM-AM curves obtained for the PA using the whole signal. However Fig. 5 shows the AM-AM curve of the PA obtained using only the first carrier. It is almost impossible to use such curve (data) to model correctly the PA.

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